

General Information or Other (PAR)

Event # 45458

<b>Rep Org:</b> HILTI INC.		<b>Notification Date / Time:</b> 10/23/2009 14:18 (EDT)	
<b>Supplier:</b> HILTI INC.		<b>Event Date / Time:</b> 10/23/2009 (CDT)	
		<b>Last Modification:</b> 10/23/2009	
<b>Region:</b> 4	<b>Docket #:</b>		
<b>City:</b> TULSA	<b>Agreement State:</b> Yes		
<b>County:</b>	<b>License #:</b>		
<b>State:</b> OK			
<b>NRC Notified by:</b> MARTIN SCHOFIELD		<b>Notifications:</b> LAWRENCE DOERFLEIN	R1DO
<b>HQ Ops Officer:</b> VINCE KLCO		JAY HENSON	R2DO
<b>Emergency Class:</b> NON EMERGENCY		NEIL OKEEFE	R4DO
<b>10 CFR Section:</b>		JOHN THORP (e-mail)	NRR
21.21	UNSPECIFIED PARAGRAPH	O. TABATABAI(e-mail)	NRO

## POTENTIAL DELIVERY OF NONCONFORMING WASHERS

Hilti provided notification of a potential delivery of nonconforming washers supplied with expansion anchors type Hilti Kwik Bolt KB3 SS316, 1/4" and 3/8" diameters, all lengths. Chemical analysis of provided samples showed the nonconforming washers were made of grade SS430Ti stainless steel instead of the specified grade SS316.

Potentially affected utilities or plants are: PSE&G Nuclear; Pilgrim; Brunswick; Arizona Public Service; Waterford 3.

\*\*\*\*\*

1E19  
NRR



Facsimile Cover Sheet

**To: U.S. Nuclear Regulatory  
Commission**

**Company:**  
**Phone:**  
**Fax:** 301-816-5151

**From: Martin P. Schofield**  
**Company:** Hilti Inc.  
**Phone:** 918-872-3379  
**Fax:** 918-872-3520

**Date:** 10/23/09  
**Pages including this  
cover page:** 5

**Comments:**

*Re: Notification of a 10 CFR Part 21 relevant discovery for Hilti KB3  
anchors*

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Thank you.

Hilti, Inc.  
5400 South 122<sup>nd</sup> East Avenue  
Tulsa, OK 74146  
(918) 252-6000



October 23, 2009

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

**Re: Notification of a 10 CFR Part 21 relevant discovery for Hilti KB3 anchors**

**Subject:** Potential delivery of nonconforming washers supplied with expansion anchors type Hilti Kwik Bolt KB3 SS316, 1/4" and 3/8" diameters, all lengths, which may meet the definition of a "defect" within 10 CFR Part 21.

**Products affected by this notification:** Stainless steel Hilti Kwik Bolt 3 type KB3 SS316

Item # 282565 KB3 SS316 1/4" x 2 1/4"

Lot # 10908397

Item # 282566 KB3 SS316 1/4" x 3 1/4"

Lot # 10770600

Lot # 10893786

Item # 282567 KB3 SS316 3/8" x 3"

Lot # 10770517

Item # 282568 KB3 SS316 3/8" x 3 3/4"

Lot # 10855730

Lot # 10893787

Lot # 10913214

Lot # 10992219

**Description of nonconformance:**

Hilti was informed by a non nuclear-related customer that stainless steel Kwik Bolt KB3 SS316 3/8" x 3 3/4" anchors, installed in a waste water treatment facility, showed rust stains on the washers approximately 18 months after installation. Subsequent chemical analysis of provided samples showed these washers were made of Grade SS430Ti stainless steel instead of the specified Grade SS316.

Our internal investigation enabled us to identify all stainless steel washers received for assembly since the stainless steel Grade SS316 KB3 anchor was introduced in 2005. As a result we have identified a specific receipt of nonconforming washers, sizes 1/4" and 3/8", in

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the second half of 2007. We have identified all production lot numbers that were potentially affected, and an earliest potential date of delivery to end-user customers of October 1, 2007.

According to our sales records a total of 10 safety-related orders, to 5 facilities, covering a total quantity of 1300 anchors, have been placed by our nuclear customers, but none of them with a request for lot traceability. Therefore, we cannot rule out the possibility that some anchors of the affected lots were delivered in the above orders. A list of all potentially affected safety-related purchase orders with customer details is attached.

Analysis of potential concern:

Investigation indicates Grade SS430Ti has significantly lower corrosion resistance compared to Grade SS316, and is generally recommended for mildly corrosive environments. In addition, when in contact with the SS316 nut, a galvanic cell may develop, resulting in accelerated deterioration of the washer. Depending on the environment, degradation of the washer may occur over time. While our preliminary analysis indicates there is no immediate safety hazard that would result in failure of an anchorage, the potential eventual deterioration of the washer could have two effects identified to-date: (1) reduction or loss of clamping force; and (2) reduction in the bearing surface area resisting the baseplate pulling over the nut.

Loss of clamping force is not expected to affect performance of the anchor itself. However, applications which rely on clamping force to maintain proper function of the attachment should be further evaluated. Since dynamic loading conditions (the most common potential clamping-critical application) are not one of the recommended applications for this anchor, coupled with the affected anchors being relatively small in diameter, clamping-critical applications would not generally be expected.

As to pullover, our preliminary analysis indicates it does not occur with a baseplate of typical thickness and a clearance hole diameter specified in Hilti technical literature. However, use of a thin baseplate and/or a significantly oversized clearance hole would require further evaluation.

In summary, our preliminary analysis indicates the nonconformance would not, in ordinary and typical application, have any substantial adverse effect on performance of the anchorage. The potential for an adverse effect would be associated with the specific application and corrosive conditions. Because we are not aware of specific conditions of use, we are unable to determine whether the nonconformance could or will result in a substantial safety hazard (i.e., a "defect", as defined in Part 21).

Required action:

Hilti, Inc.  
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We recommend customers use the attached list of purchase orders, and item and lot numbers, to determine whether there is any evidence the affected product was received. Alternatively, identification of nonconforming washers on previously installed anchors can be accomplished by magnetic check. Installations incorporating nonconforming products should be evaluated to determine the potential effect on the attachment.

If you have any questions or concerns, please contact:

Tom Horan  
Quality Manager, Hilti, Inc.  
918.872.3606  
[Tom.horan@hilti.com](mailto:Tom.horan@hilti.com)

Sincerely,

Hilti, Inc.

A handwritten signature in black ink, appearing to read "Marty Schofield". The signature is fluid and cursive, with the first name "Marty" being more prominent.

Martin Schofield  
VP, Product Safety/Liability  
706.227.9218  
[Marty.schofield@hilti.com](mailto:Marty.schofield@hilti.com)

*Cc: (attachment for below entities contain only purchase information relevant to that entity)*

PSE & G Nuclear LLC  
Regulatory Assurance  
Mail Stop: S05  
P.O. Box 236  
Hancocks Bridge, NJ 08038

Entergy Operations, Inc.  
P.O. Box 31995  
Jackson, MS 39286-1995  
Attn: Manager, Operating Experience  
M-ECH-595

Progress Energy  
Site Vice President  
Brunswick Nuclear Plant  
N.C. Hwy, 87 Box 10429  
Southport, NC 28461

Arizona Public Service Co.  
P.O. Box 52034, Mail Station 7990  
Phoenix, AZ 85072  
Attn: Procurement Engineering Section Leader

cc: Progress Energy  
Site SUPV-Lic/Reg Prog  
Brunswick Nuclear Plant  
N.C. Hwy, 87 Box 10429  
Southport, NC 28461

Entergy Operations, Inc  
P.O. Box 31995  
Jackson, MS 39286-1995  
Attn: Manager, Operating Experience  
M-ECH-595

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**Re: Notification of a 10 CFR Part 21 relevant discovery for Hilti KB3 anchors**  
Attachment – NRC  
Potentially Affected Safety-Related Purchase Orders  
October 23, 2009

Customer Name	Date of Shipment	Customer P.O. #	Quantity	Item
P1 P S E & G Nuclear	November 1, 2007	4500428782	1 box @ 100/box	# 282565 1/4" x 2-1/4"
P1 P S E & G Nuclear	August 21, 2008	4500475069	2 boxes @ 100/box	# 282565 1/4" x 2-1/4"
P1 Entergy Nuclear / Pilgrim	December 18, 2008	10219662	1 box @ 100/box	# 282565 1/4" x 2-1/4"
P2 Progress Energy / Brunswick	October 24, 2007	346032	1 box @ 100/box	# 282566 1/4" x 3-1/4"
P2 Progress Energy / Brunswick	January 24, 2008	359508	1 box @ 100/box	# 252566 1/4" x 3-1/4"
P2 Progress Energy / Brunswick	February 27, 2008	365403	1 box @ 50/box	# 282568 3/8" x 3-3/4"
P2 Progress Energy / Brunswick	March 13, 2008 March 14, 2008	367162	1 box @ 50/box 3 boxes @ 50/box	# 282568 # 282568 3/8" x 3-3/4"
P2 Progress Energy / Brunswick	March 13, 2009	428764	4 boxes @ 50/box	# 282568 3/8" x 3-3/4"
P4 Arizona Public Service Co.	October 16, 2008	500525800	4 boxes @ 50/box	# 282567 3/8" x 3"
P4 Entergy / Waterford 3	September 24, 2009	10252405	1 box @ 50/box	# 282568 3/8" x 3-3/4"